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## MEMO

Date: September 3, 2009  
To: S. Dierker, Associate Laboratory Director  
From: S. Aronson, Laboratory Director  
Subject: Transmittal of Final IA&O Assessment Report IO 09--07 Phase 1, National Synchrotron Light Source II Construction Safety Program Review Phase 1

Attached is the Internal Audit & Oversight (IA&O) report, IO 09-07 Phase 1, "National Synchrotron Light Source II Construction Safety Program Review Phase 1." This review, performed with the assistance of construction safety experts from Liberty Mutual Insurance Company consisted of a document review of the NSLS II and TORCON construction safety documents, including compliance with applicable SBMS subject areas. IA&O also reviewed the process for developing and issuing the call for proposals, the proposal review process, and the selection of the contractor.

IA&O identified no findings or areas for improvement. Two areas were identified as requiring continued attention throughout this project. These include preparing revisions to the NSLS II procedures to ensure they reflect future revisions to applicable SBMS subject areas and to ensure that all the safety requirements contained in the various project documents (NSLS II and TORCON plans, NSLS II procedures, SBMS subject areas, etc) are adequately conveyed to all workers including those who may have a primary language other than English.

If you have any questions related to this assessment report, please contact Robert McNair of the Internal Audit and Oversight Office.

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RECEIVED  
8-18-09



# BROOKHAVEN NATIONAL LABORATORY

## Internal Audit and Oversight Office

**IO 09-07 Phase 1**

**National Synchrotron Light Source II**

**Construction Safety Program Review**

**Phase 1**

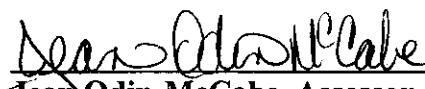
**August 26, 2009**



Edward J. Grove, Lead Assessor  
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Date



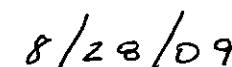
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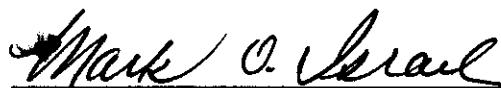
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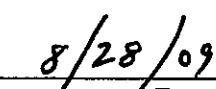
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Date

## **TABLE OF CONTENTS**

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1.0 BACKGROUND AND INTRODUCTION .....</b>	<b>2</b>
<b>2.0 PHASE I RESULTS .....</b>	<b>2</b>
<b>2.1 Review of Contractual Documents .....</b>	<b>3</b>
<b>2.2 Review of Construction Related Documents .....</b>	<b>3</b>
<b>APPENDIX A: ASSESSMENT PLAN .....</b>	<b>5</b>
<b>APPENDIX B: COMMENT TABLES WITH PROJECT RESPONSE .....</b>	<b>6-21</b>

## **IO 09-07 National Synchrotron Light Source II Construction Safety Program Review**

### **EXECUTIVE SUMMARY**

The Brookhaven National Laboratory's (BNL) National Synchrotron Light Source (NSLS) is a widely used scientific facility, hosting numerous researchers from a wide assembly of universities, government laboratories and private companies. To meet the scientific challenges for the energy future requires advanced capabilities. To meet these challenges, BNL has designed and is presently constructing the National Synchrotron Light Source II (NSLS II) which will be a state-of-the-art, medium energy electron storage ring which will deliver a world-leading beam (in intensity and brightness) and will produce x-rays 10,000 times brighter than the current NSLS.

With respect to the "Brick and Mortar" construction of the facility, BNL prepared a request for proposal for facility construction in October 2008. As part of this assessment, IA&O reviewed the process for developing and issuing the call for proposals, the proposal review process and the selection of the contractor. Responses were received from five organizations and were evaluated by a Source Selection Board. This formal process evaluated bidders against pre-determined selection criteria. The contract bid selection process was followed and the contract was awarded to the highest technically ranked bidder, TORCON.

Based on the size of the effort and the large number of workers who will be involved in the construction, it is essential that the overall construction safety program be sufficiently comprehensive to ensure the safety of all workers. Internal Audit & Oversight (IA&O) was requested by senior Laboratory Management to review the adequacy and effectiveness of the Construction Safety Program for NSLS II. This will include a review of the NSLS II Project safety and control processes and requirements flowed down to all subcontractors. A three phase approach will be utilized by IA&O, with assistance from Liberty Mutual Insurance Company's subject matter experts, to accomplish this review. Phase 1 will consist of a document review of the NSLS II and TORCON construction safety documents; Phase 2 will review the training provided to all Project personnel, and Phase 3 will involve field observation(s) of work in progress at the site.

This report documents the results of the Phase 1 assessment. No Findings or Areas for Improvement were identified. Construction and project safety program documents were reviewed and comments provided to Project staff. Many comments were related to ensuring that all SBMS subject area requirements were reflected in the documents. The comments designated for inclusion in the documentation will be incorporated during the next revision cycle. Several of the comments identified several areas which will require continued attention throughout the Project. These include preparing revisions to the NSLS II procedures to ensure they reflect future revisions to applicable SBMS subject areas. In addition, continued attention will be required to insure that all the safety requirements contained in all the various documents (NSLS II and TORCON Plans, NSLS II procedures, SBMS subject areas, etc.) are adequately conveyed to all the workers including those who may have a primary language other than English. The Assessors note that this was also commented on by the Department of Energy Review Committee during their June 2009 review.

# **IO 09-07 National Synchrotron Light Source II Construction Safety Program Review**

## **1.0 BACKGROUND AND INTRODUCTION**

Brookhaven National Laboratory's (BNL) current light source, the National Synchrotron Light Source (NSLS) is a widely used scientific facility, hosting numerous researchers from a wide assembly of universities, government laboratories and private companies. To meet the scientific challenges for the energy future requires advanced capabilities. To meet these challenges, BNL has designed and is presently constructing the National Synchrotron Light Source II (NSLS II). NSLS II will be a state-of-the-art, medium energy electron storage ring which will deliver a world-leading beam (in intensity and brightness) and will produce x-rays 10,000 times brighter than the current NSLS.

With respect to the "Brick and Mortar" construction of the facility, BNL prepared a request for proposal for facility construction in October 2008. As part of this review, IA&O reviewed the process for developing and issuing the call for proposals, the proposal review process and the selection of the contractor. Responses were received from five organizations and were evaluated by a Source Selection Board. Following this evaluation, TORCON was selected for construction of the NSLS II ring building.

Based on the size of the effort and the large number of workers who will be involved in the construction, it is essential that the overall construction safety program be sufficiently comprehensive to ensure the safety of all workers. Internal Audit & Oversight (IA&O) was requested by senior Laboratory Management to review the adequacy and effectiveness of the Construction Safety Program for NSLS II. This will include a review of the NSLS II Project safety and control processes and requirements flow down to all subcontractors. A three phase effort will be utilized by IA&O and subject matter experts (SMEs) from Liberty Mutual Insurance Company to accomplish this review. Phase 1 will consist of a document review of NSLS II and TORCON construction safety documents; Phase 2 will consist of a review the training provided to all Project personnel, and Phase 3 will involve field observation(s) of work in progress at the site. The approved Assessment Plan for this effort is attached (Appendix A).

## **2.0 PHASE 1 RESULTS**

The Phase 1 effort involved the review of construction safety related documents prepared by NSLS II and TORCON, and the pertinent SBMS subject areas. In addition, the process used by the Laboratory for developing and issuing the request for proposal and contractor selection was also reviewed.

## **2.1 Review of Contractual Documents**

An acquisition plan was developed and issued in April 2008 with the intent of issuing a traditional design-build construction contract. A source list of 31 potential contractors was developed.

A Source Selection Board (SSB) was appointed by the Light Sources Associate Laboratory Director (ALD) and consisted of a non-voting chairman, 6 voting members, and 4 ex-officio non-voting members. This committee was convened to evaluate proposals submitted in response to RFP No. 7700000004 for the construction of the NSLS II ring building. Instructions were issued to each member to manage the evaluation effort and control the quality, integrity, and comprehensiveness of the process.

The SSB members were required to adhere strictly to the evaluation criteria established in the RFP and to evaluate the proposals against standards in the SSB instructions. Evaluation criteria included such items as: contractor safety record; past performance in comparable work; record of past performance in compliance to technical aspects or criteria, schedule and budget; key personnel; project management; and quality assurance/quality control (QA/QC). Price was not an evaluation criterion, but it was a factor in making the award.

The RFP was distributed to those firms that expressed an interest. It was announced publically on October 1, 2008 on the Federal Business Opportunities website to capture any other interested companies. The acquisition was intended to be a best-value procurement. A best value procurement attempts to secure the optimum balance of technical ability, quality, performance and pricing in order to maximize the long term interests of the customer. A pre-proposal meeting was held at BNL on October 30, 2008. All interested bidders were invited to attend. The closing date for acceptance of offers was November 21, 2008. All bidders were considered responsive and their proposals were accepted and evaluated by the SSB. Bids from five organizations were reviewed by the SSB.

Initial scoring was based upon SSB member's individual evaluations of all offeror's proposals. Upon completion of the individual scoring, the Board convened on December 15, 2008 to correct misinterpretations and to discuss and normalize scoring to establish a Board consensus. The final analysis of proposals indicated that there was a unanimous agreement among the SSB members and consultants that TORCON was clearly the most qualified to perform this task. As a result of TORCON being rated the highest technically ranked offeror and their presenting the lowest price offer; TORCON was awarded the contract for construction of the ring building for the NSLS II project.

## **2.2 Review of Construction Related Documents**

IA&O assessors along with Mr. Daniel Lavoie a construction safety SME from Liberty Mutual Insurance Company reviewed specific NSLS II project and TORCON construction safety documents for compliance with applicable SBMS subject areas and industry Codes and Standards. The specific documents reviewed were:

- LT-ESH-006, Rev 1 "National Synchrotron Light Source II Construction Environment, Safety and Health Plan for Conventional Construction of the Ring Building," April 2009;
- LT-ESH-0009, Rev 1 "National Synchrotron Light Source II Environment, Safety, and Health Management Plan for the Construction of NSLS II Conventional Facilities," February 2009;
- "TORCON Project Safety, Health and Environmental Program," TORCON Project No. 09003;
- Brookhaven National Laboratory "Environment, Health and Safety Plan (HASP) Contractor's Safety Program for Conventional Construction," June 2009;

- Brookhaven National Laboratory, NSLS II Project Environmental, Safety and Health Policy and Procedure:
  - LT-ESH-P-00011, Rev 0 “Heavy Equipment Inspection,” Nov. 25, 2008,
  - LT-ESH-P-00012, Rev 2 “Reporting of Events,” April 1, 2009,
  - LT-ESH-P-00013, Rev. 1 “Safety Inspections,” Jan. 23, 2009,
  - LT-ESH-P-00014 “Site Access For Visitors, Guests and Authorized Personnel,” Nov. 25, 2008,
  - LT-ESH-P-00015, Rev. 0, “Stop Work and Work Interruption,” Nov. 25, 2008,
  - LT-ESH-P-00016, Rev. 0, “Permits,” Jan. 23, 2009,
  - LT-ESH-P-00017, Rev 0, “Heat Stress,” Jan. 23, 2009,
  - LT-ESH-0018, Rev. 0, “Rigging Equipment Inspection,” Jan. 30, 2009.

The basis for the review of the Project and TORCON documents were:

- Code of Federal Regulations 29 CFR 1926, Construction Safety
- DOE-STD-1090-2007, Change Notice 1, August 2007, “DOE Standard Hoisting and Rigging.”
- Standard Based Management System Subject Areas including:
  - Compressed Gas Cylinders and Related Systems,
  - Construction Safety,
  - Lifting Safety,
  - Excavation Safety,
  - Electrical Safety,
  - Fall Protection,
  - Forklift Safety,
  - Natural Hazards in the Environment, and
  - Stop Work.

The review found the Project and TORCON documents to be fairly comprehensive. Many of the comments addressed issues requiring clarification with SBMS subject areas. All of the comments generated from this review were presented to the NSLS II ES&H Manager and Construction Safety Engineer at a meeting held on July 15, 2009. Subsequent to the meeting, the Project staff reviewed the comments and responded formally. A compilation of the comments and the Project response is provided in Appendix B. Those comments which require revision to the Project documents will be incorporated during the next review/revision cycle.

This review identified no findings or areas for improvement. However, it did identify several areas which will require continued attention throughout the Project. These include preparing revisions to the NSLS II procedures to ensure they reflect future revisions to applicable SBMS subject areas. In addition, continued attention will be required to insure all the safety requirements contained in all the various documents (NSLS II and TORCON Plans, NSLS II procedures, SBMS subject areas, etc.) are adequately conveyed to all the workers including those who may have a primary language other than English. The Assessors note that this was also commented on by the Department of Energy Review Committee in their June 2009 review (Ref. “Department of Energy Review Committee Report on the Technical, Cost, Schedule, and Management Review of the National Synchrotron Light Source-II (NSLS-II)” June 2009).

## APPENDIX A

### Independent Assessment Plan

IO 09-07

#### National Synchrotron Light Source II – Construction Safety Program Review

##### Purpose:

To evaluate the adequacy and effectiveness of National Synchrotron Light Source (NSLS) II Construction Safety Program. This will include review of the safety and control process in the NSLS-II Project using the assessment tools developed by BNL and the flow down of requirements to subcontractors. To observe and evaluate conformance to BNL SBMS requirements, NSLS-II procedures, NSLS-II Project Safety, Health and Environmental Program, and the contractor's Health and Safety Program (HASP).

##### Conduct of Assessment:

IA&O will establish a team consisting of the Internal Audit & Oversight (IA&O) Director and Manager, IA&O Assessors and Subject Matter Experts in Construction Safety from BNL/Environment Safety & Health Directorate and / or Liberty Mutual to assist in each phase of the assessment.

##### Scope:

The evaluation will be implemented in three phases and each phase will generate reports that encompass the following elements:

##### Phase 1:

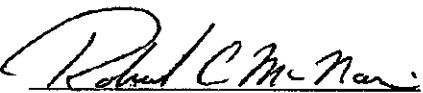
- Review SBMS Construction Safety Subject Area.
- Review NSLS-II procedures for conformance to SBMS construction safety requirements.
- Determine adequacy of flow down of DOE/BNL requirements to the contractor and subcontractor.
- Review process used for developing and issuing call for proposal and contractor selection
- Review process for consideration of contractor's previous performance in bid award.
- Review and comment on the contractor's HASP and Safety Program, Health and Environmental Program

##### Phase 2:

- Observe training provided to contractors.
- Observe toolbox and/or tailgate meetings.
- Review R2A2 and involvement of the OSHA "Competent Person" (i.e., excavation, scaffolding, electrical, etc) including the contractor's.
- Review interface / relationship between contractor, subcontractors and BNL for ongoing safe and efficient deployment of the project.
- Review the construction safety interface / relationship between the NSLS-II Project staff with F&O and Safety and Health Services.

##### Phase 3:

- Observe work-in-progress to verify compliance with the contractor's HASP and Safety, Health and Environmental Program.
- Schedule work observations by senior management



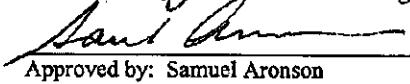
Prepared by: Robert C. McNair  
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R.C. McNair for MARK ISRAEL

Reviewed by: Mark Israel  
Director, Internal Audit & Oversight



Reviewed by: Edward J. Grove  
Lead Assessor, Internal Audit & Oversight

  
Samuel Aronson

Approved by: Samuel Aronson  
Laboratory Director

Document: TORCON Project Safety, Health and Environmental Program, Revision 2, 04/06/09

Comment Number	Applicable Section	A&O Comment	Project Response
1	5	Section 13 refers to BNL CVO and TORCON Project Safety Orientation. This Section should clearly state that the completion of BNL CVO training will qualify an individual to issue a stop work order.	The Orientation referred to in this paragraph is indeed the CVO course. Both the BNL and TORCON orientations are essentially given at the same time on the same day.
2	7	Best practice Suggestion: Consider providing medical information sticker for workers to affix to the inside of their hard hats to include information on medical conditions, allergies, etc.	The TORCON safety manager felt this was possibly a violation of HIPAA. If this information is provided, the Safety manager retains this in his personal files and can be retrieved as necessary. BNL Fire rescue will inquire at the time of treatment provided the pt. is conscious.
3	7	Will the EMT be CPR certified? Will there be an AED available on the NSLS-II construction site?	The EMT is CPR certified and will have an AED
4	8	Sub contractor pre qual does not include any specific or measurable data other than to provide this info. As written, a sub could have an EMR of 2.5 and as long as it is provable along with other data, is qualified. Consider developing specific criteria: EMR of 1.0 or less, no fatalities over XX years (or detailed description of incident for safety review) OSHA citations with CAP etc.	Sub contractor qualification criteria is specified in the contract documents and each sub is reviewed by NSLS II staff to ensure they meet the criteria
5	9	5 day lead time does not provide much time for subs not fully on board. 2 weeks prior minimum might be better	As discussed, 5 days has proven to be adequate for this Project. In the future, if the 5 day lead time is not adequate, changes will be considered.
6	9	Consider a formal in person review with Project team for PHA review.	The PHAs are prepared by the sub contractor performing the work and are reviewed by the construction safety engineers prior to TORCON approval. Following approval, they are reviewed with the crafts performing the work.

Comment Number	Applicable Section	A&O comments	Project Response
7	9	A sub contractor should provide safety training info ongoing as they may not have all the info on someone hired from a Union hall. What about employees brought in as a fill-in for vacation, times of heavy work load etc. Workers come and go and this may not be adequate.	TORCON assumes the responsibility to ensure that each person coming on site is adequately trained. BNL will audit the records.
8	9	Best Practice: Alphabetize the MSDS	The amount of chemicals on the construction site is expected to be limited. BNL will audit the MSDS records to ensure they are adequate. The Project does not feel it is necessary to alphabetize. However, in the event difficulties accessing the MSDS are seen, this suggestion will be considered.
9	9	Consider obtaining a third party annual inspection after a lattice boom crane is erected	Instead of a third party inspection, BNL will audit the crane records to ensure that the owner of the crane has performed the required inspections.
10	18	Consideration should be given to requiring a specific number of emergency evacuation drills (e.g., one/quarter). Also will worker accountability be maintained?	The contractor TORCON will conduct emergency evacuation drills, and worker accountability will be maintained. Including the frequency of these drills has benefits and will be discussed with the Contractor.
11	13	Consideration should be given to ensure SSNs are treated as PII.	Maintaining the SSNs as PII is the resp of BNL Security; they require this info. When needed, Project personnel will treat SSN as PII.
12	14	Consideration should be given to modify this section to include power industrial trucks and forklifts. Items to include operators certified to operate, lifting below the forks not allowable, seat belts, loading the building with PITs should not result in guardrails coming down, etc.	The intent of this section is to include all equipment such as forklifts, man lifts, etc. The additional items are examples of things the construction safety inspectors look for during their daily inspections and construction site tours
13	18	Not calling 911 is not in conformance with instructions given to BNL employees which allow use of 911 from a lab phone.	There are a limited number of lab based phones on the construction site. The preferred method of communication

Comment Number	Applicable Section	A&O Comment	Project Response
14	18	Consideration should be given to requiring a specific number of emer evac drills (e.g., 1/qtr)	from the field is via cell phone. All contract personnel have been trained in using 2222 for emergencies and that using 911 from a cell phone will not immediately connect with the on site Fire rescue group.
15	20	Consider revising Lab template to include additional examples of zero tolerance violations such as lack of protection in excavations > 5 ft, working on a live circuit w/o proper permit, poor or inadequate crane cribbing, and exceeding the crane or lift equipment capacity.	See response to Comment 10 above.
16	21	Best practice: Institute a policy where all cutting stations (metal stud, threaded rod, conduit, pipe, etc) are required to have a portable trash receptacle at work stations to preclude material from hitting the ground.	This list was not designed to be all inclusive. The additional items are examples of things the construction safety inspectors look for during their daily inspections and construction site tours
17	22	Best Practice: Alphabetize the MSDS	Good housekeeping is recognized as being important in this project and the comment will be forwarded to TORCON. Housekeeping is one of the items on the daily inspection check list. Violations will be reported to TORCON for correction. Repeat violations will be considered as grounds for incentive reduction.
18	25	Though not a LEED item, might want to mention dust control	The amount of chemicals on the construction site is expected to be limited. BNL will audit the MSDS records to ensure they are adequate. The Project does not feel it is necessary to alphabetize due to the limited chemicals expected to be used on the construction site.
19	26	Does a formal safety concern hold the same weight, if not why?	This list was not designed to be all inclusive. Dust is being controlled by the contractor thru the use of a water truck. As the construction progresses, the use of RCA material will increase which will further limit the dust.
			Administration of the incentive program is TORCONs responsibility. We ensure that any incentives are rolled

Comment Number	Applicable Section	IA&O comment	Project Response
20	27	If horizontal lifelines are used, they need to be engineered.	down to all sub contractors.
21	29	Per OSHA, workers must not stand on a man lift rail to gain additional height.	If a horizontal lifeline is used, BNL will audit the engineering records to ensure proper engineering was designed for.
22	30	Fire extinguishers must be fully charged	This is reviewed during daily inspections.
23	31	A better practice when using Baker scaffolding is for guardrails with gates on the ends that swing inward with guardrails required when the work platform is >48 inches.	Fully charged is implied, status of charge will be part of daily inspections.
24	31	It is the opinion of Liberty Mutual that active work platform should also be fully planked.	At present there is no Baker scaffolding used on the construction site. If used in the future, cognizant inspection personnel will inspect these to insure their proper and safe use.
25	34	An IH evaluation of conditions that may require respiratory protection during concrete and masonry work should be conducted.	We concur and this will be suggested to TORCON who is responsible for scaffolding on the construction site. Every scaffold used on site is inspected daily by cognizant inspection personnel to insure proper and safe use.
26	34	Respirators should be NIOSH approved.	TORCON has been asked to conduct fugitive dust monitoring during hot dry days, and silica dust air monitoring during concrete crushing operations
27	34	Mushroom caps for rebar should not be used for fall protection. They are for impalement.	We concur and all respirators on the construction site (if used) will be NIOSH approved.
28	37	For critical lifts, consider adding a bullet to state '75% of rated capacity or more.' List should also align with BNL list on Page 40 of the Construction ES&H Plan dated July	This is correct and the use of the caps will be part of the daily inspection program
			This list was not intended to be all inclusive. The Plan will be reviewed and any changes necessary will be included in

Comment Number	Applicable Section	I&O Comment	Project Response
29	37	Records of third party crane inspections (or copies thereof) should be maintained on site.	the next revision
30	37	Consider additional major requirements in the list: percentage of crane capacity for worst configuration (may not be heaviest pick, it could be a pick far from the crane) and soil bearing pressure under both heaviest and worst boom configuration at each crane location (this can assist in verifying the proper amount of dunnage is provided).	We concur.  These additional factors will be considered in the lift plan
31	43	Who maintains perimeter cables if used	Perimeter protection is maintained by the steel erector and will be inspected as part of the routine inspections.
32	43	Third party crane inspection documentation should be maintained on site.	We concur.
33	43	Best practice: Consider use of non breakable Danger tape in lieu of yellow plastic tape which is easily broken	At BNL we use the yellow tape. Any damaged taped barriers are repaired as soon as they are identified. The use of red tape will be suggested to TORCON
34	44	The Compressed Gas SA contains additional requirements. Do these apply?	The Compressed Gas SA applies to this project as do all other SAs pertaining to construction activities. Compliance will be monitored during daily inspections.
35	44	2 <sup>nd</sup> bullet 'regulators' is better than 'gauges'	
36	44	Best Practice: Have each sub contractor label the compressed gas cylinders under their control.	This will be suggested to TORCON

Comment Number	Applicable Section	A&O comment	Project Response
37	45	Will training be provided to those using ATVs?	The site has several of these vehicles and those authorized to operate them have been trained in their operation and safe use. As more are brought on to the construction site, all future operators will also receive the same training to ensure the safe operation
38	App. 9	Consider revising Form to state floor openings are to be labeled and secured as opposed to just covered	This will be included in the daily inspection process
39	App. 14	This Form is basically the BNL Form, however the Electrical Safety SA requires "The signature of the department Chair/Division Manager or formal designee is required to assure that the energized circuit work is appropriate." The TORCON Form does not have this level of management approval. Has the NSLS II ESH Manager been formally designated to act in place of NSLS II management?	Electrical contractors are responsible for electrical work. They have been trained in NFPA 70E and have an approved LOTO program. Energized work will not be allowed unless absolutely necessary.

NSLS II Construction Environment, Safety and Health Plan for Conventional Construction of the Ring Building,  
 April 2009 Rev 1

Comment Number	Applicable Section	I&O comment	Project Response
1	2	Goal is to have a injury and incident free operation	This Document was prepared as part of the request for proposal, and therefore will not be revised for this Project. Comments will be forwarded to the Safety Engineering Group of the Safety and Health Services Directorate who are preparing a generic HASP template.
2	2	Should alcohol free work environment also be specified?	
3	2	Are there any problems anticipated with non-English speaking workers with regard to understanding communications and procedures. How will we deal with foreign nationals	
4	3.2	Second paragraph 'safety' should be 'safely'	
5	3.3	Plan should be site-specific	
6	3.3	Is there a template that ES&H Plans should follow?	
7	5.1	Should 10 CFR 851 be mentioned more prominently in this section?	
8	6.1	It is preferable that a specific method of notification be defined for the subcontractor notifying the NSLS II ES&H Mgr of injuries, such as the use of a form.	
9	6.2	Consider a hard hat sticker which would be given to each contractor upon completion of training to be affixed to his hard hat	
10	6.3	How will the Lab track contractors who have been terminated from returning (perhaps with a different Union hall)?	
11	6.5	Are there any administrative provisions to control the keys from heavy equipment that are parked and not in use?	
12	6.5	Are there any restriction prohibiting non BNL employee's from operating government vehicles?	
13	6.6	Section may want to discuss shelter in place	
14	6.7	Accident investigators will also need access to witnesses to any incident as well	
15	6.7	Accident investigation may also pertain to near misses as well	
16	6.8	Reflective vests should also be called out specifically in this Section	
17	6.8	Face shields should be used for all cutting operations that may create a spark or flying material	
18	6.8	Hard hats should conform to ANSI Z89	

Comment Number	Applicable Section	A&C Comment	Project Response
19	6.8	Section should specifically state that hearing protection is required when noise levels exceed 85 dbA	
20	6.10	It is better to provide a dead line by which documentation of completed toolbox meetings are to be forwarded to the GC Project Supt	
21	6.13	This section should mention the need for emergency eyewashes and showers	
22	6.19	Will For Cause testing include instances of whistle blowers as well?	
23	7.2	There are more requirements specified in the SA, how are they handled?	
24	7.4	Will there be any sharing of electrical boundaries. Will there be a back-up power supply to the construction site?	
25	7.6	Are man lifts covered in this section as well?	
26	7.8	Are there any provisions for discarded cigarette butts on the construction site with respect to brush fires?	
27	7.12	Should this section address the need for assessing wind speed, tag lines, etc?	
28	7.12	This section references 29CFR1910 Subpart N, 29 CFR 1926 Subparts H and N, DOE Std for Hoisting and Rigging, and ANSI B30 and B56 series. The SBMS SA lists all but the ANSI B56 Series and the external/internal requirement. Should the SA be revised to reflect B56?	
29	7.12	Operators should be required to provide operating licenses at orientation so it can be copied and filed.	
30	7.12	Recommend that one guideline be created for critical lifts	
31	7.12	Annual crane inspection reports should also be attached to a critical lift plan as it is possible that equipment may be onsite for a period > 1 year	
32	7.12	Item should be added to include soil bearing capacity as compared to soil bearing pressures from outriggers under worst configuration (heaviest and longest reach).	
33	7.12	Under safe lifting practices, 4th bullet should also include three leg slings as well as 4 leg slings	
34	7.12	Softeners should be required around sharp edges	

Comment Number	Applicable Section	A&O comment	Project Response
35	7.13	Should this section address LOTO control on shared boundary conditions?	
36	7.15	Will off site personnel be issued BNL TLDs; will security be notified when a source is to be brought on site?	
37	7.18	Is there a need to mention tag lines?	
38	7.18	Should the need for a concrete strength test prior to steel erection be discussed?	
39	7.19	Should this section include a discussion on the need to check delivery strength, adequate curing, etc.?	
40	7.19	Capped rebar is to prevent lacerations not impalement	
41	7.19	Mention the height requirement for the Limited Access Zone near the masonry wall (wall height plus 4 ft)	
42	8.0	Is there a need to discuss provisions pertaining to portable latrine use, like tipping in the event of high winds such that spillage does not spill onto the ground?	
43	App F	Is "Calibration Date" the date calibration was performed or dates due?	
44	App K	Should the permit address configuration control, use of arc flash stickers, etc.?	
45	App M	Should the CLEF also include assessment of weather conditions (wind, rain, wet soil, etc), determining the CG before lift, determining cribbage required?	

LT-ESH-0009 Rev 1 Environment, Safety, and Health Management Plan for the Construction of  
NSLS-II Conventional Facilities

Comment Number	Applicable Section	IA&O Comments	Project Responses
1	5.8	The safety manager/coordinator should attend the pre construction meeting. A review of the PHAs, major tasks, should also be considered for the agenda.	It was the intent of the Safety manager and/or designee to attend these meetings. This will be revised at the next revision cycle. PHAs are not available at the time of this meeting, and are reviewed at a later time.
2	App A Art 44	Why are there no proactive safety measures? A sub who does not have a LT does not mean they performed safely. Consider monitoring toolbox talks, preplanning, PHAs completed safety observations, safety committee attendance, etc. Who is responsible for issuing the \$5000 reduction? Should this section spell out who has this authority? Should a review committee be used to eliminate possibility of vendettas? Once you lose the annual award, where does the positive motivation go? If a job has 2 quick LTs and they know they are only going to have 6-800000 hours, they do not qualify, so the incentive for the year is gone.	The incentives/penalties associated with the contract were given careful consideration to address many of the points raised in the comment. In addition lessons learned from other construction sites (e.g., SNS) were incorporated. The decision to issue the \$5000 reduction is made by the ES&H manager and the Project Director at a minimum. The incentive is divided into 4 segments, the last of which is based upon the safety performance of the contractor over the entire period of construction. Losing an incentive for one period does not affect subsequent periodic rewards and may not affect the final award. Project personnel feel that this provides sufficient incentives to ensure job site safety.

## LT-ESH-P-00011 – Heavy Equipment Inspection

Comment Number	Applicable Section	I&O Comment	IA&O Project Response
1	1	Should man lifts be included in this Procedure?	All equipment brought on site is inspected; Section 1.0 provides a list of typical equipment
2	4	Include LT-ESH-006 as a reference	Reference will be added next revision.
3	4	Reference should be EP-ES&H-820 not 802	Reference will be corrected next revision.
4	Att 1	Should wiper blades also be included on list?	Wiper blades are included in the cab and glass inspection

## LT-ESH-P-00013 Safety Inspections

Comment Number	Applicable Section	A&O comment	Project Response
1	3.2	How are contractors and sub contractors notified of SBMS changes?	NSLII ES&H staffs are on the SBMS revision notification list, and they will relay any pertinent information to the contractors.
2	4.0	Are references 4.1 and 4.2 the same documents?	Correction will be made at next revision
3	6.2	Are the reporting thresholds clearly delineated?	The thresholds for reporting are included on the checklist as references to OSHA Standards.

## LT-ESH-P-00014 Site Access for Visitors, Guests, and Authorized Personnel

Comment Number	Applicable Section	A&O Comment	Project Response
1	4.0	Should LT-ESH-006 be included as a reference?	Correction will be made at next revision.
2	6.0	Should names be replaced with position titles? What mechanism will be used when personnel change?	The Project has decided to keep the names. To the NSLSII staff, names are more familiar than titles. If changes occur, the procedure will be revised.
3	6.4	This requires the NSLS II ES&H Manager to ensure that all visitors are aware of PPE requirements. However, there is no step in his Procedure for the visitors to contact this manager. The manager may not be the authorizing individual and the CSE provides the safety briefing, it may be possible for the individual to complete the process without contacting the ES&H Manager.	The intent was that the ES&H manager or designee performs this function. Procedure will be revised at next revision to clarify.

## LT-ESH-P-00015 Stop Work and Work Interruption

Committee Number	Applicable Section	A&O comment	Project Response
1	2	Do we know all contractors have completed CVO training?	In order to get badged, they must have completed the training. In addition, stickers are provided to workers to affix to their hardhats which signify completion of the training. Site access (unesecored) to those who have not received this training is not permitted.
2	3.4	Do contractors have access to CBT training?	Both the Project and Torcon trailers have a number of computers for their use
3	4.0	Should LT-ESH-006 also be included as a reference?	This document will be included in the next revision
4	5.2	Why aren't work interruptions permitted by non-NSLS II project personnel?	Since work interruptions do not involve imminent danger, the person observing the practice should notify a project staff member who will initiate a work interruption. More serious instances can be addressed by Stop Work which trained personnel may enact.
5	6.1.4	Consider using titles in procedure as opposed to names	The Project has decided to keep the names. To the NSLII staff, names are more familiar than titles. If changes occur, the procedure will be revised.
6	6.1.5	If a stop work order is initiated by BHSO or DOE, who is responsible for notifying the CSE?	There is only one BHSO person with unescorted access to the site, all others must be escorted. The Project personnel have a good working relationship with DOE and tour the site together. In that case, there will always be a project person who can issue the stop work order.

Comment	Applicable Section	A&O Comment	Protected Response
7	6.1.5	Will illness/injury investigators and ORPS categorizers have free access to the site?	They will not be granted free access, and will be escorted.

## LT-ESH-P-0016 Permits

Comment Number	Applicable Section	A&O Comment	Project Response
1	1	Is there a need to add cranes to this section?	The addition is not needed, BNL does not have a permit related to crane operation.
2	4	Add LT-ESH-006 to the Reference List	Document will be added next revision
3	4	Include the SBMS SA to the list of References.	Document will be added next revision
4	6.1	Does driving stakes, markers, or posts into the ground (> 6 inches) require a permit?	Digging permits are required for any penetration into the ground in excess of 6 inches. For this Project, the entire area within the fenced boundary is covered by a special digging permit. Work outside the fence (for water and electrical service) was covered under a special permit.
5	6.1.5	Do we need to clarify the use of 911 here to be consistent with other Project documents	For consistency it will be revised next revision cycle.
6	6.2	Efforts should be made to capture slag at or directly below hot work operations to prevent it from falling to lower levels (fire blanket directly under worker or work area)	This information will be included as fire watch instructions and included in the Burn permit
7	6.4.3	If a source is brought from off site, will Security be notified before it arrives at the Main Gate?	When a source is brought from off site, RCD is notified and RWP generated.

## LT-ESH-P-00017 Heat Stress

Comment Number	Applicable Section	A&O Comment	Project Response
1	3.3	How will the NSLS II construction site be notified when NBNL declares a heat stress alert?	Both the CSE and TORCON Safety manager are included in the notification system
2	4	Include LT0EH-006, LT-ESH-009, SBMS SA as references	These will be included in the next revision
3	6.1	Who is notified of a heat stress alert?	Both the CSE and TORCON Safety manager are included in the notification system
4	Att 2	Is there a reference for this Table?	The information was taken from the ACGIH TLVs

## LT-ESH-0018 Rigging Equipment Inspection

Comment Number	Applicable Section	J&Q comment	Project Response
1	3.1	ASME BTHLD-1 is incorrect citation	The correct citation is BTH-1; correction will be made next revision
2	3.1	Include LT-ESH-006 and 009 as references	Documents will be added next revision
3	5.2	This is not a complete list of critical lifts	The revised version has a more complete list
4	5.2	Add When exceeds 50 tons	The revised version has a more complete list
5	5.3	What are the requirements for filing and maintaining records from these inspections?	The referenced ASME Stds have the requirements.
6	5.3	The term frequent is confusing, consider daily or prior to use.	The terms are defined in OSHA Stds.
7	5.3	Would it be better to state qualified designated person?	The term qualified is defined in OSHA Standards
8	5.3	Is there any requirement for NDT testing?	Initial inspections are visual unless it is determined that there is significant damage. In this case the equipment is destroyed or replaced, or NDT is required to be performed.
9	6.1	Section should also include rigging inspections of equipment contained in gang boxes or pick-ups.	Gang boxes are usually personal and material contained in the boxes is usually not inspected. Inspections are performed of equipment prior to use.
10	6.3	Consider adding 'If poor rigging is found in service by a sub contractor (or is available and not tagged out) a thorough rigging inspection should be conducted for the sub contractor along with remedial personnel training.'	Project will consider requiring a partial inspection at random of sub contractor's equipment. If repeated violations are found, this may affect the salary incentive.
11	6.5	The information on suspect and counterfeit items is taken from the SA but is not complete	Additional SA information will be added the next revision cycle.

